International Journal of Innovative Agriculture & Biology Research 4(3):55-59, July-Sept., 2016

© SEAHI PUBLICATIONS, 2016 www.seahipaj.org ISSN:2354-2934

Prevalence Of Ectoparasites Of Goats (*Capra aegagrus hircus*) Slaughtered At Aduwawa Abattior In Benin City, Nigeria

K. I. Odogu and C.E. Okaka

Department of Animal and Environmental Biology, Faculty of Life Sciences, University of Benin, Benin- City, Nigeria

ABSTRACT

The study on the prevalence of ectoparasites of goats slaughtered in Aduwawa abattoir, Benin City, Edo state was conducted from March 2013 to February 2014. Four hundred and ninety two (492) goats were examined for parasites. The ears, anus, *stomach*, legs and skin were examined for the presence of ectoparasites and the following ectoparasites were found with the following prevalence: *Amblyomma variegatus* (24.39%), *Boophilus microplus* (24.03%) and *Rhipicephalus appendiculatus* (26.83%). The overall prevalence of infestation of ectoparasites in the examined goats was 61.59%. Female goats had a higher prevalence (63.64%) when compared to male goats (61.07%). The infection rate was higher in the rainy season (73.36%) as compared to the dry season (50.00%) and there was no significant difference ($p<0.05$) between the prevalence of parasitic infection among samples examined during the seasons and among the sexes examined. Poor system of animal husbandry was noted to be a significant factor to the prevalence of these parasites among the goats.

Keywords: Prevalence, ectoparasitic infestation, goat

INTRODUCTION

Goat is an important livestock species all over the globe and especially in tropical and subtropical regions. It has a pivotal place in small scale farming and the rural economy of developing societies by generating employment and supplementing house hold income. Goats are primarily raised for leather, milk and hair production (Hassan *et al*., 2011). In many parts of the world, goats and cattle production is a profitable enterprise because of the high demand for dietary animal protein (Anaeto *et al.*, 2009). Goats as small ruminants have some advantages over larger animals such as cattle, because of their lower purchase price, higher fecundity and prolificacy, ability to survive on low quality diet in difficult conditions, availability and ease domestication.

Goats harbour a variety of ectoparasites that affect their growth as well as hides quality. Ectoparasite infestations commonly seen in goats include ticks, lice and mites (Nooruddin and Mondal, 1996; Nooruddin and Dey, 1989). They are annoying pests because of their bites and movement over the skin. The damages done by these ectoparasites to the skin of infested Goats causes considerable loss of blood (Anaemia) irritation and annoyance. As a result, feeding and digestion is hampered which may lead to retarded growth, loss of weight and reduced milk and meat production.

Four species of ticks are of major economic importance since they serve as vectors of diseases that affect domestic goat and cattle in southern Africa. These are *Amblyomma hebraeum*, the vector of *Ehrlichian* (*Cowdria*) *ruminantium*, the etiologic agent of heartwater in cattle, sheep, goats and certain wild ruminant species (Allsopp, *et al*., 2004), *Rhipicephalus* (*Boophilus*) *decoloratus*, the vector of *Babesia bigemina*, the cause of babesiosis or African redwater in cattle (De Vos, *et al.*, 2004), *Rhipicephalus microplus*, (an introduced tick for experimental purposes), which is responsible for the transmission of both *B. bigemina*

and *bovis*, the latter is the cause of Asiatic redwater in cattle (De Vos *et al*., 2004), and *Rhipicephalus appendiculatus*, the vector of *Theileria parva*, responsible for theileriosis in cattle A fifth tick species, *Rhipicephalus evertsi evertsi*, is the vector of *Babesia caballi* and *Theileria equi*, the cause of klutyf (disease) in horses (De Waal and Van Heerden 2004). Although this tick has a preference for horses in all its stages of development, it is also a common parasite of cattle, goats and sheep (Norval 1981; Walker, *et al*., 2000)

MATERIALS AND METHODS

Study Area: The study was carried out in Uhunmwode Local Government Area, which lies north of Benin City, Edo state, Nigeria. It is situated within longitudes $5^0$45'E, and $6^0$0'E, and latitudes $6^0$15N and $6^0$45'N. It has an area of 2,033km² and a population of about 120,813. This study was conducted between the months of March 2013 to February 2014.

Sample and sampling Techniques: Ticks were collected between 6am and 9am before the goats were slaughtered at the abattior. Visual examination of body fur, ears, anus, stomach, legs was carried out to detect the presence of ectoparasites and collection was done by hand picking and by use of forceps. Adequate precautions were taken to preserve the mouth parts and appendages of the ectoparasites during collection. Tick were preserved in 70% alcohol. Identification of ectoparasites was according to keys and description given by Feris (1951),Roberts (1952), Hoogstraal (1956) and Soulsby (1982).

Statistical analysis: Statistical analysis were carried out by using Statistical Package for Social Sciences (SPSS).

RESULTS

A total of 492 goats were examined between the months of March 2013 – February 2014. 120 were infected with *Amblyomma variegatum*, 133 with *Boophilus sp.* and 134 *Rhiphicelpalus sp.* The results of this study on the prevalence of ectoparasites of goats as shown in Table 4 indicates an overall prevalence of 61.59%. The ectoparasites burden with the following prevalence was recorded: *Amblyoma variegatus* 105(21.34%), *Boophilus microplus* 100(20.33%) and *Rhipicephalus appendiculatus* 98(19.32%) were found to infest goat with mean intensity of 19.22. The most prevalent parasites was *Amblyoma variegatus***.** Table 1 shows the prevalence of parasites according to sex that of which female goat has a prevalence of 58(58.59%) as compared to male goats 245(62.34%). The highest prevalence was seen in male goats and with high mean intensity 115.26 .While the seasonal variation of ectoparasites infesting goats shows that of the 248 goats examined during the dry season 245(50%) were infected while 58 (73.36%) were infected from the 244 examined during rainy season (Table 3).

Table 1: Overall prevalence and mean intensity of ectoparasites among 492 goats slaughtered at Aduwawa abattoir

Ecto-Parasites	No. infested	Prevalence	Total No. recorded	Mean intensity
Amblyomma variegatus	105	21.34	563	5.36
Boophilus microplus	100	20.33	2644	26.44
Rhipicephalus appendiculatus	98	19.92	2617	26.70
Total	303	61.59	5824	19.22

Table 2: Prevalence and mean intensity of ectoparasites according to sex

Sex of goats	No. examined	No. infected	Prevalence	Total No. recorded	Mean intensity
Female	99	63	63.64	8078	128.22
Male	393	240	61.07	26846	111.86
Total	492	303	61.59	34924	115.26

Table 3: Seasonal variation and mean intensity of ectoparasites

Season	No. examined	No. infected	Prevalence	Total No. recorded	Mean intensity
Rainy	244	58	73.36	3953	68.16
Dry	248	245	50	1400	5.7
Total	492	303	61.59	34924	17.67

Figure1. *Amblyomma variegatum*. Figure 2. *Boophilus sp*. Figure 3. *Rhipicephalus* sp.

DISCUSSION

The parasites recovered from Goats (*Caparis hircus*) investigated in this study represent infection in slaughtered goats from Aduwawa abattoir, Benin City.

Three species of ectoparasites from the goats were identified as *Rhipicephalus appendiculatus, Ambylomma variegatus, and Boophilus microplus*. It was also found that they were mixed infections of both mature and immature ticks of which the immature ticks outnumbered the matured ones of the same kind. This is in agreement with report by (Baker and Ducasse 1968; Bryson *et al*., 2002a; Maclvor and Horak 2003) that goats are often the host of large numbers of immature ticks and fewer adults. It was also reported by (Baker and Ducasse 1967; Horak 1982, 1999, Rechev 1982; Bryson *et al*., 2002b) that cattle may habour large number of both adult and immature tick than goats. This could also be attributed to the wide range of grazing habits of the cattle in search of food and transporting them to a very long distance before arriving the market. Due to this report Fourie *et al*., also reported that they may, however, also be a considerable proportional differences in the species composition of adult ticks on goats and cattle on the same farm.

In conclusion, it can be pointed that this study is by no means exhaustive. Further research need to be carried out and more host specimen examined to consolidate this and previous publications of ecto parasites of goats slaughtered at Aduwawa abattoir.

REFRENCES

Allsopp, B.A., Bezuidenhout, J.D. and Prozesky, L. (2004). Heartwater, In *Infectious diseases of livestock*, 2nd Edition, edited by J.A.W. Coetzer & R.C. Tustin. Cape Town: Oxford University Press Southern Africa.

Anaeto, M.B., Tayo, G.I, Chioma, G.O and Afolabi, A.A. (2009): Comparative study of Albendazole and *C.papaya* seed on the control of gastrointestinal nematodes in goats. *Journal of life and physical sciences*, ACTA SATECH 3(1): 25-28.

Baker, M.K. and Ducasse, F.B.W. (1967). Tick infestation of livestock in Natal. I. The predilection sites and seasonal variations of cattle ticks. *Journal of the South African Veterinary Medical Association*, 38:447–453.

Baker, M.K. and Ducasse, F.B.W. (1968). Tick infestation of live-stock in Natal. The role played by goats as reservoirs of the economically important cattle ticks. *Journal of the South African Veterinary Medical Association*, 39:55–59

Bryson, N.R., Tice, G.A., Horak, I.G., Stewart, C.G. and Du Plessis, B.J.A. (2002a). Ixodid ticks on indigenous goats owned by small-scale farmers in four communal grazing areas in South Africa. *Journal of the South African Veterinary Association*, 73:26–30.

Bryson, N.R., Tice, G.A., Horak, I.G., Stewart, C.G. and Du Plessis, B.J.A. (2002b). Ixodid ticks on cattle belonging to small-scale farmers at four communal grazing areas in South Africa. *Journal of the South African Veterinary Asso ciation*, 73:98–103.

De Vos, A.J., De Waal, D.T. and Jackson, L.A. 2004. Bovine babesiosis, in *Infectious Diseases of Livestock*, 2nd Ed., edited by J.A.W. Coetzer & R.C. Tustin. Cape Town: Oxford University Press, Southern Africa.

Ferris GF (1951). *The sucking Lice*. Vol.I. New York Li. New York Lithographing Corporation. New York, 3-285pp

Fourie, L.J. and Horak, I.G. (1990). Parasites of cattle in the south western Orange Free State. *Journal of the South African Veterinary Association*, 61:27–28.

Fourie, L.J. and Horak, I.G. (1991). The seasonal activity of adult ixodid ticks on Angora goats in the south western Orange Free State. *Journal of the South African Veterinary Association*, 62:104–106.

Fourie, L.J., Kok, D.J. and Heloise, Heyne (1996). Adult ixodid ticks on two cattle breeds in the south-western Free State, and their seasonal dynamics. *Onderstepoort Journal of Veterinary Research*, 63:19–23.

Hassan, M.M., Hoque, M.A., Islam, SKMA., Khan, S.A., Roy, K. and Banu, Q. A. (2011) prevalence of parasites in black bengal goats in Chittagong, Bangladesh. *Inter J Livestock Prod*; 2(4):40-44

Horak, I.G. (1999). Parasites of domestic and wild animals in South Africa. XXXVII. Ixodid ticks on cattle on Kikuyu grass pastures and in Valley Bushveld in the Eastern Cape Province. *Onderstepoort Journal of Veterinary Research*, 66:175–184.

Maclvor, K.M. De F. and Horak, I.G. (2003). Ixodid ticks of Angora and Boer goats, grysbok, common duikers, kudus and scrub hares in Valley Bushveld in the Eastern Cape Province. *Onderstepoort Journal of Veterinary Research*, 70:113–120.

Nooruddin, M., and Dey A.S. (1989). Further study on the prevalence of skin diseases in domestic ruminants in Bangladesh. *Bang. Vet.* 7: 75-81.

Nooruddin M. and Mondal M.M.H (1996). Otoacariasis in Bengal goats of Bangladesh. *Small Rum*. Res. 19: 87-90

Rechav, Y. (1982). Dynamics of tick populations (Acari: Ixodidae) in the Eastern Cape Province of South Africa. *Journal of Medical Entomology*, 19:679–700.

Roberts FHS (1952). *Insects Affecting Livestock*.1st edn. Angus and Robertson Ltd., London, 17-191 pp

Soulsby EJI. (1982). *Helminths, Arthropod and Protozoa of Domesticated Animals.* 7th edn., Bailliere Tindal, London.